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THE DETERMINANTS OF HEALTH CARE UTILIZATION: FINDINGS FROM THE CANADA HEALTH SURVEY (1978-79)

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INTRODUCTION

The objective of this presentation is to summarize the findings of three major studies of health care utilization in Canada, all of which were derived from Canada Health survey files (1,2,3). More specifically, I would like to illustrate what were found to be the major determinants of physician use, hospital use and dental care utilization in Canada, in 1978-79. As much as possible, I would like to discuss these findings in a health planning context, by highlighting the importance of health surveys in the conduct of such an exercise.

Why is it important for health planners and administrators to understand the most salient determinants of health care utilization? From a health care planning and research perspective, data collected through surveys can enable us to:

1) Identify the users of health care services in terms of their socio-demographic and economic characteristics
2) Identify the health needs and perceptions of the population
3) Identify the non-users of health care services, and some of the reasons why they don't use the services
4) Identify the "heavy users" of health care services, and consequently their cost implications
5) Identify groups at risk or afflicted by ill-health (target populations) and set up appropriate planning and promotion strategies

6) Identify the major barriers to care, where they still exist, and suggest improvements where needed.
7) Evaluate the existing delivery system and how effectively it reaches the overall population (The question of availability, accessibility and manpower supply).
8) Estimate future demand and requirements.
9) Identify areas of underutilization, an area which has always been a major difficulty for health planners and providers(4).

Conceptual Framework and Methodology

The three studies that I am about to discuss with you were conducted using essentially a similar conceptual framework. The framework was derived from the approaches employed by Newhouse and Phelps(5), Beck(6), Anderson(7), and Grossman(8), in their studies of health care utilization behaviour.

The main objective of the three Canadian studies is to assess the influence of health needs, economic status and socio-demographic characteristics of the Canadian population, as well as the availability of health resources on utilization behaviour.

The conceptual relationship between the utilization of health care services and its determinants is illustrated in figure 1.

Figure 1. Conceptual Framework For the Study Of the Determinants Of Health Care Utilization

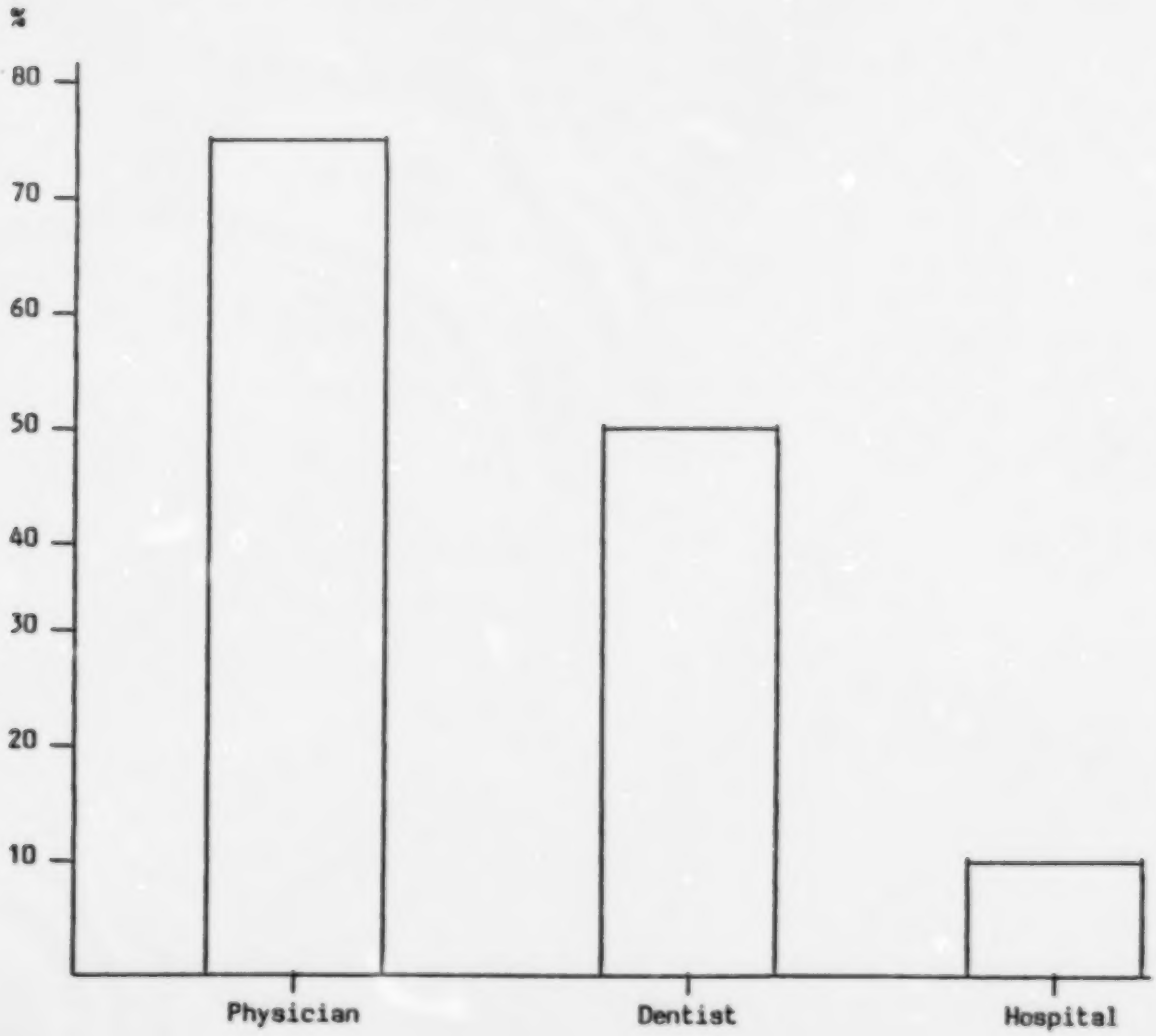
Use = F (Health Needs,	Predisposing Factors	Enabling Factors
No. of health problems No. of disability days No. of Accidents No. of Chronic Conditions Activity limitations Medical history Drug use	Demographic: Age, Sex, Education, Marital Status Health beliefs: Conceptions Parental, school influence	Family Resources: Income, Occupation, Insurance Coverage, Source of Care Community Resources: Residence: Area and Size, Physician/Pop. ratio, Hospital/Bed/Pop. ratio Water Fluoridation

From a methodological viewpoint, the main objective of the three studies was to maximize the statistical differences between users and non users of health care services holding other factors constant. In a first step, a discriminant analysis was conducted to analyze the isolated effects of predisposing, enabling and need factors on the use and non use of health care services. In a second step, a multiple regression analysis was employed to study the characteristics of those Canadians who consume the most health care services.

Major Findings

The findings of the Canada Health Survey indicate that 76 percent of the Canadian population consulted a medical doctor at least once in 1978-79. Meanwhile, 50 percent of Canadians visited a dentist at least once during the same period. In terms of hospital use, Canada Health Survey data reveal that 10 percent of the population incurred at least one episode of hospitalization (figure 2).

Figure 2. Percentage Utilization Of Physician Care, Hospital Care and Dental Care, Canada, 1978-79



Having examined overall utilization rates for the three types of health care services, I will now speak about the major determinants of health services utilization.

Physician Use

In general, the study of physician use in Canada indicate that the need variables (illness and response) were the most powerful predictors of utilization. The major health problems which resulted in at least one consultation with a medical doctor were: hypertension, diabetes, heart problems, trauma, cancer and mental disorders. On the other hand, people suffering from hearing disorders, influenza, allergies, arthritis and rheumatism and acute respiratory problems exhibited a lower propensity to seek medical care. The findings of the study also suggest that those with the most health problems (medical needs) consumed the biggest volume of physician care. These results support the contention that the medical needs of Canadians are the most significant and influential determinants of, not only the decision to seek treatment, but also on the volume of service consumed.

In terms of predisposing variables, it was found that females in the 20-44 age group and older males (65+) were more likely to visit a medical doctor. In both cases, these two groups (female 20-44 and male 65+) were also found to be greatest consumers of physician care, older males using significantly more than their female counterparts.

Marital status also plays a determining role on the decision to seek medical care. Indeed, the findings of the Canada Health Survey suggest that married Canadians exhibited a greater tendency to seek care. Separated, widowed or divorced Canadians were also more likely to visit a doctor, when compared to single individuals. Regarding the influence of marital status on the volume of physician care, no statistical difference was found between the three groups, implying that married, separated, divorced or widowed, and single Canadians consumed essentially the same volume of care.

Focusing next on the enabling factors, the results of the study indicate that the respondent's family income failed to contribute significantly to the discrimination of users from non users. These findings support the contention that the Medicare program has effectively reduced the barriers to medical care in this country. However, if we focus on the users alone, the results of the regression analysis suggest that poor Canadians are heavier users of physician care than the wealthier members of society. Given that the ability to pay does not appear to be an important factor when explaining the variation in the volume of care consumed, these findings may illustrate the possibility that the requirements (needs) for care are greater among low income earners.

The findings from the Canada Health Survey also indicate that employed Canadians were more likely to visit a medical doctor, when compared to unemployed Canadians. However, concerning the volume of care, it was found that the unemployed use the services more extensively than the employed.

The results of the discriminant analysis also suggest that the propensity to seek treatment at least once during the year is also enhanced by an increasing availability of physician, as measured by the physician to population ratio and by the size of the respondent's area of residency. The coefficients relating the volume of use to the measures of availability were positive and significant, implying that the volume of physician care is determined in part, by the availability and accessibility of physician care.

Hospital Use

As was the case with the study on physician use, the findings of the Canada Health Survey suggest that medical needs are the most powerful predictors of hospital utilization in Canada. Furthermore, it was found that the volume of hospital care was significantly increased by the medical needs of the patient.

Regarding the predisposing factors, it was observed that females in the 20-44 age group, and males in the 65+ age group exhibited a greater propensity to use inpatient care during the year. Concerning the volume of care consumed, no significant differences attributable to sex specific health needs, were observed. However, the results of the regression analysis suggest that the volume of hospital care consumed increases along with age. These findings corroborate the assertion that a deteriorating health status with advancing age results in an increased utilization of hospital services.

Focusing on marital status, it was found that married, separated or divorced Canadians were more likely to experience at least one hospital admission during the year. Concerning the length of stay, the results of the regression analysis on users only, suggest that single individuals consumed more hospital services compared to the other marital groups.

These results support the assertion that, when compared to single respondents, the availability of post hospital care provided by other family members may reduce the volume of hospital care consumed by married Canadians.

The results of the discriminant analysis failed to discriminate between users and non users of hospital care, on the basis of economic status; a set of results which confirm that the national health insurance program in Canada has been instrumental in eliminating financial barriers to hospital care.

Conversely, the analysis of the volume of hospital care indicated that the poor and the middle income groups consumed significantly more inpatient services than high income earners. As was the case with physician use, these findings probably imply greater requirements for inpatient services among lower socio-economic groups. These findings are also in agreement with Schuman's work in which he found that lower socio-economic groups are more socially isolated or ethnocentric and therefore will depend more upon lay support or community resources (hospital emergency room) during illness(9).

The activity status of the respondent was also found to be a major determining factor in the use or non use of hospital services; unemployed individuals being more likely to incur at least one hospital admission, compared to the employed group. These findings corroborate some evidence indicating that individuals with the greatest burden of illness are in the lower socio-economic classes with the highest level of unemployment(10).

Our study failed to capture the full effect of the hospital bed to population ratio on the use and non use of hospital services. This is probably due to some limitations of the data which forced us to rely on a rather crude indicator. However, it was found that an increasing supply of physicians significantly reduces the probability of an individual experiencing at least one episode of hospitalization.

Accordingly, such findings imply that an improvement in the availability of physicians appears to induce the substitution of outpatient for inpatient care. Such an assertion is in accordance with the belief that an increase in primary care provided by a "health professional" will decrease the utilization of secondary and primary health care services in institutions.

Finally, the discriminant analysis of hospital use suggest that the greater availability of alternate sources of care, such as chronic and convalescent hospitals, nursing homes and home care programs in major cities reduces the likelihood of the individual using inpatient services.

Utilization of Dental Care Services

Compared to the studies of physician and hospital use, many more independent variables contributed to explain differences between users and non users of dental care services. Two important factors can explain, in part, this situation. First, unlike physical or mental illness, poor oral health is more predictable and is not in general life-threatening or particularly debilitating(11). Second, the inexistence of a universal dental care program may contribute to create important financial and accessibility barriers to dental care. Therefore, the decision to consult a dentist is dependent upon other factors than "dental needs".

The analysis of dental care utilization revealed that age was the single most important predictor of the use or non use of dental care services in Canada. It was observed that the propensity to seek dental treatment considerably decreases as age increases. In general, two factors can explain this inverse relationship between age and utilization. First, tooth decay is highly prevalent among children(12). Consequently, there exists a greater need for dental treatment among children. Second, the existence of some provincial public dental plans aimed at children contributes to eliminate some financial barriers to care among children, and therefore increases their liklihood of consulting a dentist.

Education was found to be the second most important predictor of dental care utilization. Higher educated Canadians were more likely to make at least one dental visit, compared with those with less education.

The "dental needs" of Canadians, as measured by the number of dental problems, was also found to be an important factor in the discrimination between users and non users of dental care services. However, only 54 percent of those Canadians with dental problems visited a dentist in 1978-79. These findings imply that there are 46 percent of Canadians with "dental needs" who do not seek professional help.

A greater availability of supply, as measured by the dentist to population ratio and the size of the respondent's area of residency, significantly increased the liklihood of visiting a dentist at least once during the year.

In general, females were found to be higher consumers of dental care services, when compared with their male counterparts.

Unlike physician and hospital use, the level of family income plays a determining role in the decision to seek or not the services of a dental professional. The findings of the Canada Health Survey indicate a very strong and positive relationship between utilization of dental care services and family income. Consequently, in some cases, the use of dental care services will be dependent upon one's ability to pay for such services. In fact, the number one reason cited by those with dental problems and no consultation, was: "costs too much"(13).

The results of the discriminant analysis indicated that marital status was also a significant predictor of dental care services. Single individuals were more likely to visit a dentist, followed by married Canadians, an then by separated or divorced and widowed respondents.

Those Canadians who are unemployed exhibited a greater propensity to seek dental care, compared to those currently active in the labour force.

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The analysis of provincial utilization and participation in public or private insurance plans, suggests that individuals enrolled in a private plan (premium or co-payment) will be more likely to visit a dentist, compared to those covered under a publicly funded plan (free dental care).

Other factors such as parental and school influence and family size along with preventive behaviour, were found to be related to the utilization of dental care services.

Discussion

One common point stems from all three studies: the bulk of the utilization of health care services is by people who do have health or dental problems (age being used as a surrogate for both dental and medical needs); leaving a very small number of people who use health care services inappropriately. Therefore, the need factors become the most important predictors of health care services.

Now, the biggest challenge faced by health planners and administrators remains the identification of these need factors. Medical records and hospital statistics provide useful information on the types of illnesses as well as their incidence and prevalence. Cross-sectional surveys carry the information a little further, enabling us to link those health needs of the population with specific demographic attributes and socio-economic characteristics. For example, the fact that hospital consumption increases with advancing age has long been documented and was further substantiated by CHS findings. Furthermore, data from CHS files have enabled us to focus on those groups in society who make greater usage of health care facilities (older males, females in the 20-44 age group, low income earners, the unemployed, single individuals, etc.). These data not only permit the examination of risk populations, but also enable planners and researchers to draw a profile of the population, and consequently devise more accurate models which forecast future demands and requirements. CHS findings have also produced some information about non-users and some of the major barriers to care. For example, it was possible to examine a list of health problems and analyze the behaviour (consultation or not) of Canadians, in response to perceived or detected illnesses. In the case of physician use and hospital use, the majority of non users with health problems did not use the system because the thought that the problem was not serious enough or because they thought it could be

controlled without professional help. In the case of dental care services, the cross-sectional data derived from CHS has demonstrated the existence of financial barriers, and how these barriers act as deterrent to care.

The study of the major determinants of health care services has also proven useful in the evaluation of the present delivery system. All three studies have demonstrated the relationship between utilization and the availability and accessibility of human resources (physician, dentists) and alternate sources of care (nursing home, home care, etc.). The cost implications of these findings are extremely important to planners and administrators in their objective of meeting the needs of the population at the lowest possible cost with the optimal quality of care. In the case of dentistry, for example, data from the Canada Health Survey, have been instrumental in comparing and evaluating differential utilization rates among children in different provinces offering publicly funded dental care, with varying methods of delivery (private office, school-clinics, use of auxiliaries).

To conclude, I would like to mention a few words about the Canada Health Survey itself. Even with the degree of the "hardness" of some of the data brought forward by CHS files, it has been possible to explain, in part, the variances in health care utilization in Canada. Obviously, the data base presents its limitations in terms of our real need for data in the Canadian Health Care sector. Very little is known about the "psychological behaviour" of individuals when confronted with the decision to seek or not professional treatment. Although cross-sectional data have their limitations for epidemiological studies, they can provide fertile ground for investigating how certain risks are combined in the population at a given point in time. Finally, an important aspect about CHS data files which is often overlooked, is that such a data file represents an excellent basis for establishing Canada-wide baselines, an area which is too often neglected in the collection of provincial health care data.

To sum up, because of the richness and variety of data collected through health surveys, these surveys are instrumental in the research, analysis, evaluation, planning, and administration of health care facilities and services.

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